

REMARKS

Claims 1-2, 4, 43-44 and 58-60 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Russell et al. (U.S. Patent No. 6,254,716), and further in view of Omagari (JP 2000-258746) and Fujikawa (JP 05-326,451). Applicants traverse the rejection because the cited references do not disclose or suggest an apparatus for manufacturing a panel display that includes, among other things, a control device that substantially equalizes the pressure applied by each vacuum chuck device with a pressure in the treatment or vacuum chamber, as recited in claims 1 and 43, respectively. Applicants traverse the rejection of independent claims 58-59 because the cited references do not disclose or suggest an apparatus for manufacturing a panel display that includes, among other things, a control device that controls a vacuum attraction mode and an electrostatic attraction mode based on the pressure in the treatment chamber.

The Examiner cites Russell as teaching an apparatus capable of bonding a panel display that includes a treatment chamber 22 and first and second holding units 24 and 26. The control device 90 and a vacuum pump are considered to be capable of substantially equalizing the pressure applied by at least one holding unit with the pressure in the treatment chamber (Col. 3, lns. 53-67). The controller 90 is programmed to execute a serial sequence of logical operations to provide output signals via various valve and motor drivers to operate the processing chamber 22, vacuum pump 72, actuators, and valves. However, the controller 90 achieves a desired evacuation pressure by evacuating a tank 48 with a pump 72 for a period of time as determined by a timing function within the controller. Alternatively, the

controller can monitor an output signal from a pressure sensor 73 in a pressure measuring relationship with a tank 48 (see Col. 4, lns. 31-37). Russell fails to disclose that the control device substantially equalizes the pressure applied by each vacuum chuck device with the pressure in the treatment or vacuum chamber, as recited in independent claims 1 and 43. Russell is also silent regarding the control device controlling attraction modes based on the pressure in the treatment chamber. That is, Russell does not disclose or suggest switching between a vacuum attraction mode and an electrostatic attraction mode based on the pressure in the treatment chamber.

Fujikawa fails to overcome the deficiencies of Russell. Fujikawa discloses a holder 12 that generates an attraction pressure in the range of 10^{-4} to 10^{-5} Torr to prevent plasma from generating in a gap between a substrate 1 and a surface of the holder. An electrostatic chuck 4 and a vacuum chuck assist vacuum attraction and are simultaneously activated to attract substrate 1 (see paragraphs [0013] and [0020]). However, Fujikawa does not disclose or suggest that the pressure in the treatment or vacuum chamber is equalized with the pressure applied by the holder. Likewise, Fujikawa does not disclose or suggest a controller that changes between a vacuum and an electrostatic mode according to a pressure in the treatment chamber.


Omagari is also unable to overcome the deficiencies of the Russell and Fujikawa references. Paragraph [0054] of Omagari suggests that a pneumatic cylinder 17 may pressurize substrates 15 and 16 by use of oil hydraulic pressure or an electric motor. Omagari does not disclose or suggest a control device that equalizes pressure applied by each

vacuum chuck device with the pressure in a treatment or vacuum chamber. Omagari also fails to disclose or suggest a control device that switches between a vacuum and an electrostatic attraction mode according to the pressure in the treatment chamber. Therefore, the combination of Russell, Fujikawa, and Omagari fails to teach or suggest the control device of the present invention, as recited in independent claims 1, 43 and 58-59. For this reason, withdrawal of the §103 rejection of independent claims 1, 43, and 58-59 and their respective dependent claims is respectfully requested.

For all of the foregoing reasons, Applicants submit that this Application is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

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